Appendix B, Chapter 24
River Otter

24.0 River Otter *(Lutra Canadensis)*

The river otter (*Lutra canadensis*) is a top predator of most aquatic food chains that has adapted to a wide variety of aquatic habitats, from marine environments to high mountain lakes of North America (Toweill and Tabor 1982, Melquist and Hornocker 1983, Melquist and Dronkert 1987). The river otter is a year-round resident of the lower Columbia River mainstem and estuary (Howerton et al. 1984, Henny et al. 1996), although field observations and trapper data indicate that population numbers are relatively low (Howerton et al. 1984). Otters on the lower Columbia River concentrate their time in shallow, tidal influenced back waters, sloughs, and streams throughout the estuary. River otters exhibit differing degrees of social and spatial structure based on available habitat, shelter, and food (Reid et al. 1994b). Otter home ranges (approximately 11 river miles) are largely defined by local topography and overlap extensively within and among sexes, exhibiting varying degrees of mutual avoidance and tolerance depending on seasonal dispersion and availability of food and shelter (Reid et al. 1994b). However, otters do maintain territories within home ranges that are delineated by scent marking and latrine sites. Areas within territories are used almost exclusively by the defending otter, who excludes other otters of the same sex (i.e., females otter excludes other females and family groups while males exclude other males). Female river otters mate immediately after parturition during the months of March and April, with estrous lasting up to 46 days (Wright 1963, Melquist and Hornocker 1983). Fertilized eggs develop to the blastocyst stage and are arrested in development (delayed implantation) for up to 10 months (Hamilton and Eadie 1964, Tabor and Wight 1977). The duration of pregnancy after implantation occurs is approximately 2 months. Otter diets vary seasonally and generally consist of a wide variety of fish species and aquatic invertebrates such as crabs, crayfish, and mussels (Toweill 1974, Toweill and Tabor 1982, Melquist and Dronkert 1987, Reid et al. 1994a).

Contaminant concentrations above available reference levels have been observed in river otter tissue samples; however, detrimental physiological effects have not been clearly established. For example, concentrations of organochlorines (i.e. PCBs, pesticides, dioxins, and furans) were higher in lower Columbia River otter samples compared to reference sites outside the lower Columbia River basin (Tetra Tech 1996). In general, observed contaminant

concentrations in river otters increased with age; also, for age 2+ river otters, tissue contaminant levels decreased from rm 119.5 (near Vancouver/Portland) to rm 11.0 (Tetra Tech 1996). A number of physiological concerns were documented in river otters compared to otters from the reference sites: abnormal liver function, lower baculum weight and length, and lower mean testes weight (Tetra Tech 1996). However, when compared to previous tissue contaminant concentration data (Henny et al. 1981 as cited in Tetra Tech 1996), contaminant levels in river otter tissue in the 1990s indicate a major decline in PCB concentrations (Tetra Tech 1996). Further, data suggests that certain physiological problems may be temporary because organs of older males did not show significant size differences compared to reference animals (Tetra Tech 1996).

In the estuary, river otters are concentrated in shallow water tidal sloughs and creeks associated with willow-dogwood and Sitka spruce habitats located primarily in the Cathlamet Bay area and along the Oregon riverbank (Howerton et al. 1984); otters likely inhabit similar areas throughout the tidal freshwater area of the lower Columbia. Field observations and trapper data indicate the river otter population abundance in the lower Columbia River mainstem and estuary was relatively low in the early 1980s (Howerton et al. 1984); low abundance may be the normal equilibrium level for river otters in this region. Dikes throughout the estuary have disconnected substantial amounts of side channel and floodplain habitats from the mainstem. However, the Cathlamet Bay area remains as one of the most intact and productive tidal marsh and swamp habitat throughout the entire estuary. Because river otters are capable of traveling over land, it is not understood how the loss of habitat connectivity of side channel and floodplain habitat has affected species' behaviors such as foraging, resting, mating, and rearing.